

Comparison of insulin secretion and resistance in patients with acute coronary syndrome

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*Abstract

Background: Bulk of increasing evidences indicates that the postprandial hyperglycemia is considered as a risk factor for atherosclerosis and coronary artery disease. Several different pathophysiologic mechanisms contribute to disturbances in glucose homeostasis.

Objective: To evaluate the frequency of post-challenge hyperglycemia in acute coronary syndrome (ACS) patients with previously undiagnosed diabetes and fasting glucose concentrations of less than 126 mg/dl in Qazvin and also to determine the main cause of glucose intolerance.

Methods: This analytic study was accomplished at Qazvin Metabolic Diseases Research Center in 2007. A total of 120 patients with acute coronary syndrome who met the recommended inclusion criteria were studied. An oral glucose tolerance test with sampling at minutes 0, 30 and 120 was performed for each patient. The data were statistically investigated by analysis of variance, Pearson correlation and chi-square test.

Findings: Normal glucose tolerance (NGT), impaired glucose tolerance (IGT), and diabetes mellitus (DM) were found in 40, 48, and 32 cases of patients, respectively. The homeostasis model assessment for insulin resistance (HOMA-IR) showed no substantial difference among three groups however, the insulinogenic index in IGT and DM patients was lower than those of NGT group with two-hour plasma insulin level higher in the former groups compared to the latter.

Conclusion: Post-challenge hyperglycemia, caused primarily by impaired insulin initial secretion and muscle insulin resistance, is common among the ACS patients with previously undiagnosed diabetes in Qazvin. Hyperinsulinemia is a good indicator of insulin resistance in postprandial hyperglycemia. Assessing the oral glucose tolerance test of post-challenge hyperglycemia is essential in ACS patients with previously undiagnosed diabetes.

Keywords: Coronary Disease, Blood Glucose, Insulin

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